

Composting

*... and other
Down-to-Earth Solutions*



SASKATCHEWAN
WASTE
REDUCTION
COUNCIL



Introduction

Home composting and its alternatives are ways we can reduce the amount of material sent to the landfill.

Making use of food scraps and yard waste at home is easy and rewarding. These materials, also called organic wastes, make up one-third of annual household waste and, in summer, can be half of the garbage we produce!

There are many benefits to finding ways to handle your organic wastes:

- ◇ you can improve the soil in your yard and garden
- ◇ you can extend landfill life
- ◇ you can reduce the production of gases and liquids that cause problems in landfills

Your food and yard materials can become earthly riches. The techniques in this booklet all restore organic matter to your soil. This is important in terms of soil structure, water-holding capacity and fertility.

There are a variety of methods for handling organic waste. They vary in their ability to deal effectively with specific materials.

	Grass clippings	Leaves	Green plants	Dried plants	Food waste	Wood chips
Grasscycling (p.3)	•					
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Grasscycling

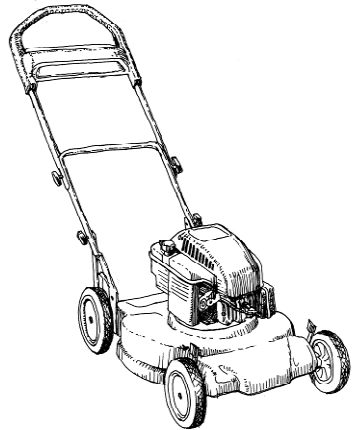
Leaving the grass clippings on the lawn when you mow is one of the easiest ways to recycle. Lawns respond well to this treatment if you do the following:

- ◇ adjust the mower to leave a 2.5-3" (6-8 cm) blade of grass
- ◇ mow to remove a half-inch (1 cm) clipping
- ◇ keep mower blades sharp
- ◇ cut grass when dry
- ◇ water deeply and only when needed

You can use any lawn mower that allows the cutting height to be adjusted. Mulching mowers leave finer cuttings and blow them into the turf. Many manufacturers produce kits for converting conventional mowers into mulching mowers.

Benefits

- ◇ no heavy bags of clippings to handle (also saves time)
- ◇ reduces nitrogen fertilizer needs by 25% after two years
- ◇ taller grass reduces evaporation
- ◇ does not add appreciably to thatch layer, especially if a mulching mower is used
- ◇ a safe way to handle herbicide-treated clippings



Considerations

- ◇ more frequent mowing
- ◇ clippings remain on lawn surface for a day or two if a mulching mower is not used
- ◇ lawns still require a good raking in spring to remove dead grass and thatch (this material can be composted or used as mulch)

Participants in an Edmonton grasscycling project decreased their average mowing time by 25 minutes per week and reduced their garbage by two bags per week.

Mulching

Mulching is a simple and effective way to reuse some yard wastes. Mulch is a layer of material placed on top of the soil to slow evaporation, control weeds and protect against temperature extremes. A mulch may be applied for a season (summer or winter) or as permanent cover. Organic mulches, like grass clippings, leaves and wood chips, break down slowly and become part of the soil.

Organic mulches work best if you:

- ◇ use a 4" (10 cm) layer and replenish when necessary
- ◇ apply them to moist, weed-free soil
- ◇ allow the soil to warm first when applying in the spring

Grass clippings

- ◇ can be used fresh or dried
- ◇ are a good summer mulch around vegetables and annuals
- ◇ must be herbicide-free (wait at least three mowings after chemical application before use)

Autumn leaves

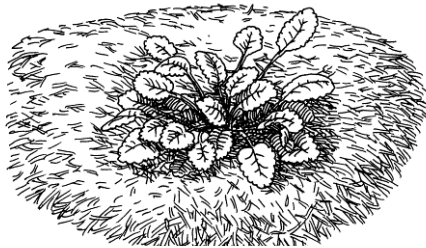
- ◇ can be used as is or shredded by a lawn mower
- ◇ work well as a winter mulch around cold-sensitive plants
- ◇ are also a good summer mulch around annuals

Wood chips

- ◇ can be used as permanent mulch under shrubs and trees
- ◇ make a good 'no mud' surface for garden paths

Considerations:

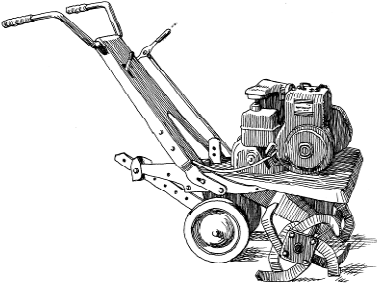
- ◇ avoid mulching in slug-prone areas



Further information: *Creating the Prairie Xeriscape*, Sara Williams (see back cover)

Sheet Composting

This is a fancy name for the common practice of tilling or digging leaves and other plant materials into garden soil in the fall. It is a great way to replenish the organic matter in vegetable gardens. Tilling the materials in during the autumn allows them to break down before spring planting.



Considerations:

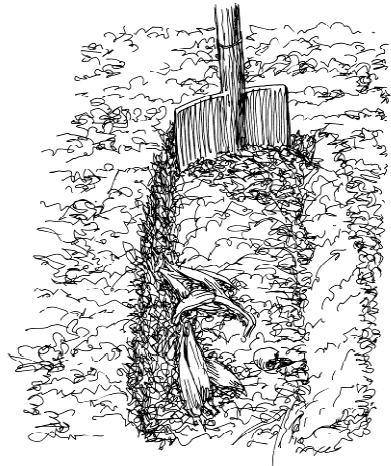
- ◇ limit the amount of leaves you till in to about a 4" (10 cm) layer
- ◇ corn stalks and squash vines need to be shredded first
- ◇ extra nitrogen fertilizer or manure may be needed in the spring if decomposition is not complete

Trench Composting

Trench composting is a technique that allows you to recycle your summer food waste and build up the fertility in a selected part of a vegetable garden. Set aside space in the garden, dig a 12-15" (30-38 cm) deep trench, add food scraps when available and cover with 8" (20 cm) of soil. Next year plants like corn, squash or cabbage are planted on the compost trench.

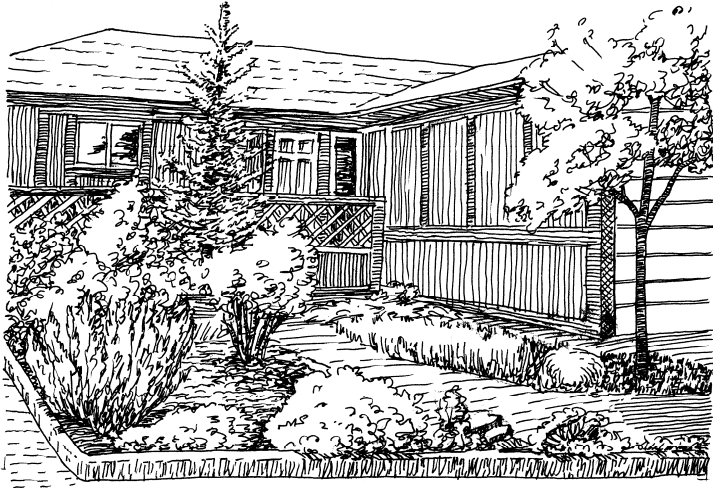
Considerations:

- ◇ Cover the open trench with a stout board to avoid accidents or dig a new hole for each batch of kitchen scraps



Landscaping Alternatives

The way a yard is landscaped makes a large difference in the amount of grass to mow, weeds to pull, or leaves to rake. If you are landscaping a new home or are thinking of making changes to your yard, keep waste management and water use in mind. *Creating the Prairie Xeriscape* by Sara Williams and the *Gardener for the Prairies* magazine are good sources of ideas for Saskatchewan gardeners.



Vermicomposting

Vermicomposting is a way of turning some of your food scraps into fertile castings by feeding them to red wiggler worms. These worms are not native to Saskatchewan and must be kept at room temperature to do their work. They are usually housed in conveniently sized plastic tubs that have been modified to provide ventilation.

The worms need bedding—a mix of strips of moist newsprint and soil is a common choice. For more details on vermicomposting visit the Saskatchewan Waste Reduction Council website at www.saskwastereduction.ca or call them at 931-3242.

Feeding Farm Animals

Chickens and pigs make good use of food scraps. You can compost their manure later. It is a wise idea to avoid using composted pig manure in vegetable gardens in case some disease organisms survive the heating process.

Composting

Compost is valuable, ready-to-use organic matter for your soil. Mature compost looks dark, feels crumbly and smells earthy. Adding compost to your soil:

- ◇ increases its ability to hold water
- ◇ improves soil structure
- ◇ provides a low-level, slow-release fertilizer
- ◇ boosts the number of 'good' soil microbes



Compost is made by arranging materials in piles and speeding up the natural decay process. If you understand the basics, making compost is simple and odour-free. One of the great benefits of composting is that you can place the end product exactly where it is needed. Best of all, you can make compost from a wide range of 'waste' materials.

MATERIALS

The composting process needs a mixture of materials that are high in carbon (C) and nitrogen (N). Carbon sources are sometimes called *browns* and nitrogen sources are often called *greens*.

Nitrogen (Green) Sources:

- ◇ Kitchen scraps: raw or cooked fruit & vegetable wastes, coffee grounds & filters, tea bags, egg shells, bread, pasta
- ◇ Green plant material: green grass clippings*, fresh plant material (trimmings, weeds)
- ◇ Agricultural manures: cow, horse, sheep, chicken

Carbon (Brown) Sources:

- ◇ Dry, brown plant material: leaves, grass, dead plants, straw
- ◇ Wood products: wood chips or sawdust (very high in C, slow to compost)
- ◇ Paper: strips of newsprint can be used when nothing else is available (very high in C, slow to compost)

*herbicides approved in Canada for use on lawns can be safely composted

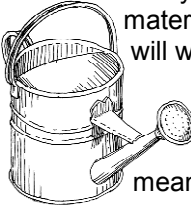
AVOID:

- Meat, bones & dairy products (create odours & attract animals)
- Fat & oils (hard to break down)
- Sawdust from treated wood (toxic materials)
- Diseased plants, weeds with mature seeds, persistent weeds
- Pig, dog & cat manure (parasite transfer)

How the Composting Process Works

BACTERIA AND FUNGI are the main workers in a compost pile.

Usually these tiny creatures are already on the compost materials when we put them in the pile. Your compost pile will work well if you can supply the following things:



- **WATER** *Composting materials need to be kept as moist as a damp sponge.* In Saskatchewan, this means that we have to add water on a regular basis.
- **FOOD** Bacteria need a balanced diet:
 - ◊ **brown** materials that contain lots of **carbon**, like autumn leaves, dry grass and straw (Save your autumn leaves to use all year round)
 - ◊ some fresh or **green** materials rich in **nitrogen** such as green grass clippings, fresh plants and food scraps
 - ◊ **3 parts brown to 2 parts green** works well **with the materials listed above**
- **OXYGEN (AIR)** When bacteria have access to oxygen (as well as moisture and a balanced diet), they break down material faster, give off enough heat to kill weed seeds, and don't create bad smells. Keep air spaces open by turning with a fork or by fluffing with an aeration tool.
- **PARTICLE SIZE** Bacteria work faster if their food is in smaller pieces. Take time to break up plant stocks and other bulky items as you add them. Woody materials will only compost well if they are shredded.
- **SOIL** Small amounts of topsoil or finished compost help absorb odours and add more compost creatures to the pile.
- **PILE SIZE** Compost piles work better if they are at least a cubic meter in size, but don't worry if you don't have that much at the start. Materials can be added gradually.



Shrinkage

One of the big surprises in the composting process is how much your pile shrinks. Finished compost has only a quarter to a half of the volume of the starting mix.

Making a Pile

Open piles or single unit bins are common choices for beginning composters. The method that follows works well in either case. It is easiest to start when there are lots of materials available, such as during spring and fall cleanup.



Start with a 6" (15 cm) layer of coarse material, like plant stems, that are sturdy enough to create some air spaces at the bottom of the pile or bin.



Add a 4" (10 cm) layer of high **nitrogen greens** and a shovel full of **soil**.



Cover with a 6-8" (15-20 cm) layer of high **carbon browns**.



Add **water** until all materials are damp, then **mix** the top two layers with a fork.

Add **greens** as they become available and then mix in the browns, soil and water.

Compost made this way should **heat** from bacterial action in a few days. A hot compost pile works faster and kills weed seeds.

Stirring the top layers weekly and adding water if needed will keep a hot pile going. After three months, in warm weather, material at the bottom of the pile should be cool, dark, crumbly and ready to use.

Winter

Small compost piles freeze over the winter. Fortunately, as soon as the pile thaws out in the spring, the composting process picks up where it left off. You can keep adding food scraps throughout winter and wait until spring to mix in leaves (or other browns) and soil. OR you can freeze food scraps in bags or large lidded pails and add them to your pile with browns in the spring.

Compost Bins

Using a bin is a tidy, space-saving way to make compost. Bins come in many sizes and shapes; they can be purchased or built. When building or buying, there are several things to consider:

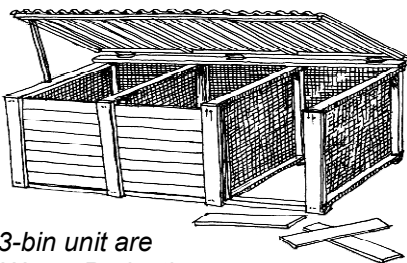
- ◇ ease of use: adding material, turning, harvesting
- ◇ size: amount of material you have to process
- ◇ appearance
- ◇ cost
- ◇ skill required to build or assemble
- ◇ aeration balanced with concern for moisture loss
- ◇ ability to keep animals away from contents

Siting: Place your bin in a convenient shady spot.



Single plastic unit: a common choice for beginning composters. It handles a modest volume, is relatively inexpensive and easy to assemble, and keeps most animals out of the compost. (See Harvest, Page 12)

Three unit bin: a good choice for compost enthusiasts and/or those with large yards. It handles larger volumes, allows ease of use and is usually built on site. (See Hints, page 11)



[Construction plans for a wooden 3-bin unit are available from the Saskatchewan Waste Reduction Council, 931-3242 or see www.saskwastereduction.ca/resources/Composting/3-comp-bin]

Avoid making bins from pressure-treated lumber; it will contaminate the compost.



Hints

- Store leaves and other high-carbon materials so that you have browns to mix with greens during summer months.
- Add water when the pile gets dry.
- You can speed up the composting process by turning your pile frequently (once or twice a week).
- Use a small lidded pail to collect kitchen scraps and add them to your outdoor compost every day or two.
- To avoid odour and insect problems in your pile, cover food scraps with a layer of leaves or soil.
- Don't worry if your pile doesn't heat up. Moist piles that have never heated will still compost, but at a slower rate, and weed seeds will survive.
- If you use a multiple unit bin, you will be able to turn piles from one compartment to another and to have piles at different stages of "cooking".

Troubleshooting

SMELLY: Turn compost materials with a fork and add some high carbon materials (like leaves and straw) and soil.

DRY: Add water until contents are as moist as a damp sponge.

PILE IS MOIST BUT HAS NEVER HEATED: Mix and add some high nitrogen materials such as grass clippings, manure or a small amount of nitrogen fertilizer.

MICE: Set traps. Review the avoid list for kitchen scraps. Consider using a more animal-resistant compost bin or switching methods for food scraps to trench composting or vermicomposting.

Harvest

- Compost is ready for use when it is dark, crumbly and earthy-smelling. Harvesting a completely composted pile is simple — just shovel it into the wheel barrow.
- A single unit bin may pose more challenges. The finished compost is usually covered by unfinished material. If possible, remove the bin from the pile. Set the empty bin in a new spot, turn the unfinished material into it to continue composting, and harvest the finished material.

Use

Compost is an excellent soil amendment. It can be used as it emerges from the bin or screened for a finer product. A screen made of ½ inch wire mesh works well.

- ◇ dig a 1-2" (3-5cm) layer into garden or flower beds in spring or fall
- ◇ use as a surface mulch around established plants
- ◇ rake a thin layer of screened compost into your lawn—after aeration is a good time
- ◇ screen mature compost and use in your potting soil mix
- ◇ make simple compost tea by placing compost in a mesh bag in a pail of water for several hours. Use the tea to water plants.

Other sources of information:

Basic Composting, Eric Ebeling, Ed. Mechanicsburg, PA: Stackpole Books, 2003

The Rodale Book of Composting, Deborah Martin & Grace Gershuny, Ed., Emmaus, PA: Rodale Press, 1992

The Complete Compost Gardening Guide, Barbara Pleasant & Deborah Martin, MA: Storey Publishing, 2008

Creating the Prairie Xeriscape, Sara Williams, Saskatoon: University Extension Press, University of Saskatchewan, 1997

www.saskwastereduction.ca, Saskatchewan Waste Reduction Council

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